

REMARKS/ARGUMENTS

Claims 1-3, 5-9, 12-24, 29, 31-34, 36, 37, 54, 64, 76, 89, 102, 117, 133, 150, 163, 164, 173, and 175-178 are currently pending.

Response to Arguments

The Patent Office admits that Periyalwar does not teach a (i) modifying step or (ii) a comparing step subsequent to the modifying step. The Patent Office also agrees that Charbonnier does not teach a modifying step.

As far as Sundelin is concerned, the Applicant respectively asserts that this irrelevant to current claims for several reasons.

a) The current claims refer to measuring the power from a current serving cell and a neighbouring cell (one other cell) and if power of neighbouring cell satisfies a condition (e.g. the measured neighbouring cell power is greater than a threshold, the result of measuring in the first steps is modified. Therefore it is clear that what is modified is a measured signal strength subsequent to this a comparison step is undertaken. As far as the specific section of text of Sundelin referred to by the Patent Office is concerned, this refers to adjusting the mobile's downlink transmit power. Firstly this has i) nothing to do with the measuring power from a cell, i.e. from a base station and secondly ii) the claim is very clear in that what is modified is a measured signal, i.e. not an actual signal. It is furthermore clear from the remainder of the current claims that the modification is for the purpose of a iii) comparison step.

Thus the modification and comparison are purely for analytical reasons whereas what is modified in Sundelin is actual power. Therefore, it lacks relevance and one of ordinary skill in the art would not consider a disclosure of modify actual power to come up with a suggestion of modifying a measured signal from a base station for comparison/analytical purposes.

b) Sundelin is concerned with controlling downlink power control in soft hand off, where more than one base station are serving base stations. Current claims clearly refer to handover from one base station to another (currently non-serving base stations). There is no disclosure either of any comparison of measured strength of communications from different cells; in fact there is no suggested comparison at all between different cells. In any case in general Sundelin is concerned with controlling the transmit power of a base station. Each base station in Sundelin

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adjusts its transmission power based on its own SIR measurement and its own TPC command received from the mobile. This has nothing to do with comparison between different cells as disclosed in our claims.

c) Furthermore in Sundelin the measurement steps and any other steps are taken by the base station. In the current application measuring modifying comparisons steps are performed by the mobile station. Again this is good enough reason on its own as to why one of ordinary skill in the art would not even consider this document. Please note especially that Sundelin is concerned with a completely different problem, i.e. as mentioned controlling transmit power of base stations as opposed to is the case in the current claims, selecting one base station from a number of base stations in handover.

d) It is clear from the current claims as mentioned that the modification step is for the purpose of subsequent comparison. Whereas Sundelin describes modifying a signal to interference ratio and using this to control the base station transmit power, there is no explicit reference or implied reference or reason why one of ordinary skill in the art would consider modifying one particular measured parameter (and specifically the power from a base station at a mobile) for the purposes of a comparison step. There is clearly no comparison in Sundelin and the Patent Office is invited to state where this is found.

e) Furthermore, Applicant notes that the Patent Office is trying to mosaic together three documents for obviousness. There is no reason at all as to why even with the knowledge of Sundelin one would wish to include a modification step into the teachings of Charbonnier and Periyalwar.

f) Even if selected teachings from all three documents are combined there is no reason why one of ordinary skill in the art would consider modifying a measured signal for comparison purposes. Charbonnier and Periyalwar completely ignore any modification (as agreed by the Patent Office) and **the only thing that was modified in Sundelin is actual transmit power and not a measured signal**. For all these reasons, even combined the other three documents do not hint at modifying measured strength from a base station at a mobile station, for the purpose of a subsequent comparison. The current claims allow for efficient determining of handover and selections of base station therefor. It allows measured signals (powers) to be modified for comparison purposes so that a number of other factors such as traffic conditions can be taken into consideration so that it isn't just raw measured signal powers that are used for comparison.

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Furthermore the modification and comparison steps are only performed if the power from the other cell is satisfies a predetermined condition. This saves unnecessary computation/time resources as far as the mobile is concerned.

Applicant notes that on page 3 of the September 14, 2010, the Patent Office admitted as follows:

Examiner also agrees with Applicants' assertion that Karlsson does not teach the claimed modifying feature, however, Karlsson is not cited to teaching said feature. Karlsson is cited for its teaching of the threshold being defined relative to the measured strength of the communication from the current cell.

35 U.S.C. § 103(a)

Claims 1-3, 7-9, 12-22, 29, 33, 54, 64, 76, 89, 102, 117, 133, 150, 163, 164, 173, and 175-178 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Charbonnier, U.S. Patent No. 5,241,686, in view of Periyalar, U.S. Patent No. 6,018,662, and further in view of Sundelin, U.S. Patent No. 6,144,861.

Claims 5, 6, 23, 24, 31, 32, and 35-37 stand rejected under 35 U.S.C. §103 as unpatentable over Charbonnier, in view of Periyalar and Sundelin, as applied to claim 1 above, and further in view of Karlsson, U.S. Patent No. 5,640,677.

The claims recite the novel feature of modifying the measured strength of the communication from the current cell by a current cell offset value, the current cell offset value being dependent on the offset information. A hysteresis offset may be used to modify the measured strength of the communication from the current cell at the station, the offset being dependent on the current cell being the current cell of the station. In other words, applying an offset to the current cell received signal strength from the currently active call base station because it is the current action cell reduces the amount of "ping-pong" selection activity which could occur at boundaries of cells.

As discussed in a previous response and at length, Charbonnier (US-5241686) discloses a method for optimising the distribution of the radio electric load on a radio communication cellular network at fixed intervals. Charbonnier discloses in column 6 that a synthesizer is positioned successively and cyclically on each frequency (for radio channels used as a beacon route, i.e. base station frequencies). Then for each frequency, the output signal from the modem is analysed to determine if it is a valid beacon route, i.e. is a valid base station, and possibly read

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the characteristic data of the relay amongst which the value of the field correction parameter (H) for the base station is determined. At this point the field strength or power (E) of the electric field for the beacon route may also be measured. The unit may then compute the difference between the power of the received field and field correction parameter and stores the corrected field value in memory. Thus, all of the base stations have a field correction value applied associated with the available capacity of the base station in question.

It is only when the mobile has scanned the entire set of beacon routes listed in the table of frequencies, including the beacon route of the channel in which it is currently located, that the route compares the values of the corrected field and determines the beacon route having the highest corrected value.

As discussed above the beacon signal of the cell is corrected by a correction parameter value, which is the offset value. Although all of the cell/beacons have offset values dependent on the current capacity of the cell, there is no disclosure of a specific current cell offset value.

Charbonnier applies an offset to each cell and does not favour or indicate bias whether or not the beacon is currently in use by the given mobile unit.

Therefore the claim is furthermore novel over Charbonnier as the present application recites a current cell offset value linked, i.e. an offset associated with the cell being the current cell and other further offset values which are applied to non-current cell signals.

As indicated previously, there would be an advantage in the embodiments of the present application over the prior art in that for the prior art systems there is no or only limited ways to prevent the mobile jumping from cell to cell quickly as the handover would be highly dependent on the loading of the cell. Thus the loading correction factor has a harsh correction factor. It could be imagined that current cell station would jump from cell A to cell B if cell B was not considered to be heavily loaded but may attempt to immediately offload the station back to cell A and vice versa very soon after. The present invention would overcome such a problem as the offset is linked to the current cell would decrease the probability of premature offloading of the cell communication.

Thus the present invention implements a hysteresis or offset value depending on being the cell currently being used "the current cell" and therefore effectively biases the decision to the current cell to prevent such rapid handover processes from having to occur unless absolutely necessary.

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Charbonnier discloses a method whereby mobile stations measure the strength of signals from base stations, applies correction values (which depend on load indication) and selects the base station which has the highest correct field.

However, the modifying step of the current amended claims is only carried out if a pre-determined condition is satisfied. The pre-determined condition is specified in the independent claims that *“the strength of the communication from at least one other cell is greater than a threshold.”*

In the Charbonnier teaching, the modification is not dependent on any such factor and is continuously being performed. This is clear from column 2, line 54 onwards which discloses that *“the field correction perimeter of a fixed station depends on a proximity load indicator, periodically re-evaluated.”* Furthermore, in column 6, line 40 onwards, Charbonnier teaches that *“each relay is continuously sent a pre-determined signal.”* The implication here is that the modification, i.e., correction of parameters occurs continuously. Furthermore, in column 8, lines 58 onwards, Charbonnier discloses that *“the mobile, for example, scans a beacon route every 700 milliseconds.”* Again, this is for the purpose of computer corrected parameters. As can be seen through Charbonnier, in claim 1 in column 16, Charbonnier’s teaching of *“correcting the measured radio electric field corresponding to each of said fixed stations...”* requires adding the correction factor each time.

An advantage in Applicant’s exemplary embodiments of the invention is that the modified procedure, i.e., the correction procedure, does not have to be carried out all the time and is only carried out if a neighboring station signal exceeds a threshold. There is no disclosure or suggestion by Charbonnier, of this aspect and there is not suggestion by Charbonnier as to why one of ordinary skill in the art would be motivated to do so.

The Patent Office appears to repeat the language of claim 1 with passages from Periyalwar in brackets. However, it appears the Patent Office has misread the current claim as the Patent Office quotes “if said measuring is performed.” The correct language in the current claim is “if modifying is performed”. Thus, the Patent Office is in error in its analysis through misreading of the claim language.

The system of Periyalwar merely discloses measuring the strengths of signals from base stations to see if there are of sufficient strength to add them to a candidate set. There is no

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disclosure at all in Periyalwar of (i) modifying any signals. Moreover, the modifying in the current claims is performed (ii) conditional and (iii) subsequent to the measuring step.

In Periyalwar (see column 4, lines 23-65, column 5, lines 1-25), it is clear that the comparison step merely compares the strengths from the base stations unmodified, and does not perform the comparison after both measurement and modification.

The current claims address the problem of reducing the time and processing required to both (i) modify all potential base station signals, as well as (ii) compare all said modified signals with current signals. This is reduced in the invention by first of all filtering out base stations which do not have sufficient strength. Because the modification can be complex, this substantially reduces processing required. As modification is not even disclosed in Periyalwar there is no reason for one of ordinary skill in the art to consider this reference.

As discussed previously, in Charbonnier, modification is always and continuously performed, and there is no suggestion that modification not always be performed.

The Patent Office admits that Periyalwar does not teach a (i) modifying step or (ii) a comparing step subsequent to the modifying step. The Patent Office also agrees that neither Charbonnier nor Karlsson teaches a modifying step.

The Patent Office asserted as follows on page 5 of the September 14, 2010 Office Action:

Sundelin, which also teaches soft handoff, teaches the modifying the signal strength of the communication from at least one other cell when the strength of the communication from the at least one other cell is greater than a threshold (Abstract, the signal strength of the cells in the active set are modified via the power control, said power control of the signals of the cells in the active set can only occur after said cells have been placed in the active set, which means that said modifying occurs after the pilot strength of the at least one other cell exceeds a threshold), if modifying is performed, comparing the measured strength of the communication from the current cell and the measured strength of the communication from the at least one other cell being modified in the modifying (Abstract, the comparison of the measured strength of the communication from the current cell and the measured strength of the communication from the at least one other cell can only occur after the cells have been placed in the active set, since the modifying occurs after said cells have been placed in the active set a scenario is rendered that comprises said comparison occurring if said modifying is performed); and depending on the results from the comparison, changing the current cell which the station is associated (Abstract, in soft handoff there will be a periodic comparison between current or serving cell and the other cell(s) in the active set in order to determine which cell has the better signal strength, when a cell in

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the active set other than the current cell proves to have a better signal strength the connection with the current/serving cell will be released and the call will be continued only through the new cell thus completing the handoff).

As far as Sundelin is concerned, the Applicant respectively asserts that this irrelevant to current claims for several reasons.

a) The current claims refer to measuring the power from a current serving cell and a neighbouring cell (one other cell) and if power of neighbouring cell satisfies a condition (e.g. the measured neighbouring cell power is greater than a threshold, the result of measuring in the first steps is modified. Therefore it is clear that what is modified is a measured signal strength subsequent to this a comparison step is undertaken. As far as the specific section of text of Sundelin referred to by the Patent Office is concerned, this refers to adjusting the mobile's downlink transmit power. Firstly this has i) nothing to do with the measuring power from a cell, i.e. from a base station and secondly ii) the claim is very clear in that what is modified is a measured signal, i.e. not an actual signal. It is furthermore clear from the remainder of the current claims that the modification is for the purpose of a iii) comparison step.

Thus the modification and comparison are purely for analytical reasons whereas what is modified in Sundelin is actual power. Therefore one of ordinary skill in the art would not consider a disclosure of modify actual power to come up with a suggestion of modifying a measured signal from a base station for comparison/analytical purposes.

b) Sundelin is concerned with controlling downlink power control in soft hand off, where more than one base station are serving base stations. Current claims clearly refer to handover from one base station to another (currently non-serving base stations). There is no disclosure either of any comparison of measured strength of communications from different cells; in fact there is no suggested comparison at all between different cells. In any case in general Sundelin is concerned with controlling the transmit power of a base station. **Each base station in Sundelin adjusts its transmission power based on its own SIR measurement and its own TPC command received from the mobile. This has nothing to do with comparison between different cells as disclosed in our claims.**

c) Furthermore in Sundelin the measurement steps and any other steps are taken by the base station. In the current application measuring modifying comparisons steps are

performed by the mobile station. Again this is good enough reason on its own as to why one of ordinary skill in the art would not even consider this document. Please note especially that Sundelin is concerned with a completely different problem, i.e. as mentioned controlling transmit power of base stations as opposed to is the case in the current claims, selecting one base station from a number of base stations in handover.

d) It is clear from the current claims as mentioned that the modification step is for the purpose of subsequent comparison. Whereas Sundelin describes modifying a signal to interference ratio and using this to control the base station transmit power, there is no explicit reference or implied reference or reason why one of ordinary skill in the art would consider modifying one particular measured parameter (and specifically the power from a base station at a mobile) for the purposes of a comparison step. **There is clearly no comparison in Sundelin. The Patent Office is invited to identify the location of such a teaching or suggestion in Sundelin.**

e) Furthermore the Patent Office is attempting to combine three documents to make a case of obviousness where it is clear it would be very difficult for one of ordinary skill in the art to come up with Applicant's exemplary embodiments of the claimed invention. There is no reason at all as to why even with the knowledge of Sundelin one would wish to include a modification step into the teachings of Charbonnier and Periyalwar.

f) Even if selected teachings from all three documents are combined there is no reason at all as to why one of ordinary skill in the art would consider modifying a measured signal for comparison purposes. Charbonnier and Periyalwar completely ignore any modification (as agreed by the Patent Office) and **all that was modified in Sundelin is actual transmit power and not a measured signal.** For all these reasons, even combined the other three documents do not hint at modifying measured strength from a base station at a mobile station for the purpose of a subsequent comparison. The current claims allow for efficient determining of handover and selections of base station therefor. Applicant's exemplary embodiments of the claimed invention allow measured signals (powers) to be modified for comparison purposes so that a number of other factors such as traffic conditions can be taken into consideration. This avoids the use of just raw measured signal powers for comparison. Furthermore, the modification and comparison steps are only performed if the power from the other cell satisfies a predetermined condition. This saves unnecessary computation/time resources as far as the mobile is concerned.

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None of Charbonnier, Periyalwar, or Sundelin teaches or discloses modifying the measured strength of the communication from the current cell by a current cell offset value, the current cell offset value being dependent on the offset information.

Accordingly, no purported combination of these three references would teach or suggest this claimed subject matter.

Thus, claims 1-3, 7-9, 12-22, 29, 33, 54, 64, 76, 89, 102, 117, 133, 150, 163, 164, 173, and 175-178 are not made obvious by Charbonnier in view of Periyalwar and Sundelin.

As far as Karlsson is concerned, Karlsson does disclose measuring and determining if the signal strength for a neighboring base station is above a threshold. However, this is not performed in order to determine whether measured signal strengths should be modified and subsequently compared. In Karlsson, the exact sentence in column 11, line 25, states “*the mobile then tunes to a preferred neighbour as soon as the measured signal strength for this neighbour is above the threshold set for this neighbour cell.*” In other words, if this pre-determined condition exists the mobile simply tunes to a neighbouring cell. Thus, checking whether a neighbouring cell has a signal strength above threshold is for an entirely different purpose. In fact, the purpose of switching and tuning to a neighbouring cell in Karlsson is very obvious.

Further discussion of Karlsson may be found in the response filed August 31, 2009.

Applicant notes that on page 3 of the September 14, 2010, the Patent Office admitted as follows:

Examiner also agrees with Applicants’ assertion that Karlsson does not teach the claimed modifying feature, however, Karlsson is not cited to teaching said feature. Karlsson is cited for its teaching of the threshold being defined relative to the measured strength of the communication from the current cell.

In combining the teachings of Charbonnier, Periyalwar, and Sundelin, with those of Karlsson, no motivation is provided as to why one of ordinary skill in the art would consider, without the benefit of impermissible hindsight reconstruction, utilizing Karlsson’s teaching for an entirely different purpose to modify Charbonnier.

Thus, claims 1-3, 5-9, 12-24, 29, 31-34, 36, 37, 54, 64, 76, 89, 102, 117, 133, 150, 163, 164, 173, and 175-178 are allowable over the prior art of record.

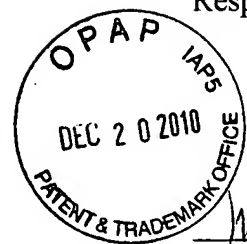
The Patent Office is respectfully requested to reconsider and remove the rejections of the claims 1-3, 5-9, 12-29, 31-37, 54, 64, 76, 89, 102, 117, 133, 150, 163, 164, 173, and 175-178 under 35 U.S.C. 103(a) based on Charbonnier in view of Periyalwar and Sundelin, or Charbonnier in

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view of Periyalwar, Sundelin, and Karlsson, and to allow all of the pending claims 1-3, 5-9, 12-24, 29, 31-34, 36, 37, 54, 64, 76, 89, 102, 117, 133, 150, 163, 164, 173, and 175-178 as now presented for examination. An early notification of the allowability of claims 1-3, 5-9, 12-24, 29, 31-34, 36, 37, 54, 64, 76, 89, 102, 117, 133, 150, 163, 164, 173, and 175-178 is earnestly solicited.

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